

REMARKS

The specification has been amended. Claims 1, 4, and 22 have been amended. Claims 1, 4, 6-28 remain pending in the application. Reexamination and reconsideration is respectfully requested.

An Appeal Brief was filed on 01/27/2009. A phone conference was held on 05/13/2009 between the examiner and the below named attorney. The examiner suggested various amendments to make the application allowable. Proposed amendments were sent by the applicant, but no agreement was reached. A new non-final office action was mailed 06/05/2009. There is no indication that the proposed amendments were entered. The current amendments are the same as the earlier amendments proposed by the applicant.

Claims 1, 4, and 22 have been amended to specify that a transaction record includes storage for expectation records. No new matter has been added. Support for the amendments may be found, for example, at page 6, lines 9-11.

In the office action dated 06/05/2009, claims 4 and 22 were rejected under 35 USC 101 because of language in the specification that a storage medium or code could be in the form of an electronic signal. The specification has been amended to remove any language that states that a computer readable medium includes transmission or signals.

In the office action dated 06/05/2009, claims 1-28 were rejected under 35 USC 112, second paragraph, as allegedly being indefinite. In particular, for claims 1, 4, and 22, the examiner interprets the claims as specifying that the agent generates the transaction record and the expected output signal. The applicant respectfully disagrees. Claim 1 specifies "a computer implemented method of verifying events generated by an agent". The computer implemented method detects input signals, generates a transaction record, generates an expected output, and generates an error signal. Nothing in claims 1, 4, or 22 suggests that the agent under test performs any of those steps. In the specification, figure 2, the transaction record and expectation record is generated by a checker, not the agent.

Regarding claim 22, the examiner further asserts that the written description fails to clearly link structure with the means plus function limitations. Applicant respectfully disagrees. As specified in the Appeal Brief dated 01/27/2009, the relevant structure is found in the specification as follows:

22. An apparatus for testing an agent **{Fig. 1, 12}** in a computer system, comprising:

means for detecting at least one incoming message as it is received by said agent **{Page 4, lines 13-16}**;

means for generating a transaction record **{Page 4, lines 17-20; Page 5, lines 12-20; Page 6, lines 9-11; Page 16, lines 11-13}** corresponding to said incoming message;

means for generating at least one expected outgoing message, correlated to said transaction record **{Page 4, lines 17-26; Page 6, lines 9-11}**, that should be produced by said agent in response to said incoming message, wherein said at least one expected outgoing message is generated at least in part based on said at least one incoming message; and

means for signaling an error when said agent does not generate said expected outgoing message corresponding to said transaction record **{Page 7, lines 25-34; Page 18, lines 3-4, lines 23-26; Page 19, lines 25-27; Page 21, lines 26-30; Page 21, line 32 to Page 22, line 2}**.

Regarding claim 7, the examiner further asserts that the term "snoop response" is not defined sufficiently to permit one of ordinary skill in the art to reasonably determine the scope of the claim. The applicant respectfully disagrees. The term "snoop response" is a well-understood commonly-used term in cache memory systems. The following Internet searches are not intended to provide an official definition of the term "snoop response", but instead are intended to demonstrate that the term is commonly used and understood in the area of computer memory. In a Google search for the term "snoop response" (in quotes) on 08/06/2009, nine of the first ten hits have the exact term in patents, and the tenth hit is in a technical bulletin, each dealing with memory systems, and in each reference the term is used in the same context as the present application. In a Google search for (cache "snoop response") (the word cache was added to filter out hits regarding a popular Rap star), at least the first 30 hits point to sources using the term "snoop response" in the same context as the present application.

The following is from Wikipedia (http://en.wikipedia.org/wiki/Cache_coherence) as captured on 08/26/2009:

Snooping is the process where the individual caches monitor address lines for accesses to memory locations that they have cached. When a write operation is observed to a location that a cache has a copy of, the cache controller invalidates its own copy of the snooped memory location.

The following definition is from (http://www.webopedia.com/TERM/s/snooping_protocol.html) as captured on 08/26/2009:

(snoop'ing prō't&-kol'') (n.) Also referred to as a *bus-snooping protocol*, a protocol for maintaining cache coherency in symmetric multiprocessing environments. In a snooping system, all caches on the bus monitor (or snoop) the bus to determine if they have a copy of the block of data that is requested on the bus. Every cache has a copy of the sharing status of every block of physical memory it has. Multiple copies of a document in a multiprocessing environment typically can be read without any coherence problems; however, a processor must have exclusive access to the bus in order to write.

In the office action dated 06/05/2009, claims, 1, 4, 6-11, and 13-28 were rejected under 35 USC 102(b) as allegedly being anticipated by US Patent Number 5,051,938 (Hyduke). The applicant respectfully disagrees. Independent claims 1, 4, and 22 (as amended), specify detecting an input

signal at an input of an agent; creating a transaction record corresponding to the input signal, each transaction record including storage for expectation records associated with that transaction record; generating an expected output signal, corresponding to the transaction record, based at least in part on the input signal; and signaling an error when the agent does not generate the expected output signal corresponding to the transaction record. The examiner cites Hyduke, column 3, lines 46-53 for an detecting an input signal at the input of an agent; Hyduke, column 3, lines 54-68 for a transaction record; Hyduke, column 3, lines 50-53 for generating an expected output signal, and Hyduke, column 8, lines 43-48 for signaling an error. Hyduke, column 1, refers to figure 1, where circuit descriptions 10A and 10B are fed to a table generator 12, the output of which is a table of design elements and pointers to hardware models used by a simulator 14 to simulate a circuit. Hyduke, column 8, refers to figure 5, where a simulator 1 simulates hardware, and a test comparator 46 compares the simulated outputs to the actual outputs. In the examiner's characterization, the design data 11A and 11B of figure 1 corresponds to the input data of the claims, the table generator 12 corresponds to the agent of the claims, and the output of the table generator corresponds to the transaction record of the claims.

The cited correspondence between parts of Hyduke and the claims does not make technical sense in light of the requirements of the corresponding claim language, and Hyduke does not teach or suggest all the limitations of the claims. First, in the examiner's characterization of Hyduke, the agent (table generator) generates the transaction record. However, as discussed above, in the claims, the agent does not generate the transaction record. Second, the claims require signaling an error when the agent does not generate the expected output signal corresponding to the transaction record. It makes no technical sense to have an expected output (an expected table)

for the table generator of Hyduke, or to compare the actual output table of the table generator to some expected table, and Hyduke does not teach or suggest expected outputs from the table generator or comparison. There is no teaching or suggestion that the data table being generated is a transaction record (it is table of pointers and circuit elements, there is no transaction). There is no teaching or suggestion that the data table includes storage for expectation records associated with the transaction record (there are no expectation records). Finally, there is no relationship between the error checking of figure 5 of Hyduke and the cited portions of figure 1.

Claim 6, dependent on claim 4, further specifies signaling an error if an event is detected at least one output for which no expectation has been produced. The examiner cites Hyduke, column 8, lines 43-48, which state that an error is generated if there is "any discrepancy" between signals 45 and 47. A general statement such as "any discrepancy" does not anticipate a specific limitation such as an error if an event is detected at least one output for which no expectation has been produced.

Claim 7, dependent on claim 4, further specifies a stimulus being selected from a group consisting of an initial request to perform a memory operation, a snoop response, and a read response. Hyduke does not teach or suggest anything about memory operations, or snoop responses, or read responses. The examiner cites Hyduke, column 6, lines 38-49, which discusses whether a model is available in RAM, but the cited text is irrelevant to memory operations, snoop responses, or read responses as a stimulus.

Claim 8, dependent on claim 4, further specifies program code for identifying a stimulus using correlative information in the stimulus. Hyduke does not teach or suggest identifying a stimulus using correlative information in the stimulus. The examiner cites Hyduke, column 6, lines 32-68, which states that a software routine checks to see if an input is a terminal, but the information for determining whether an input is a terminal does not come from correlative information in the stimulus, but instead comes from a separate netlist or schematic.

Claim 9, dependent on claim 8, specifies that the correlative information comprises a transaction identification. Hyduke does not teach or suggest correlative information comprising a transaction identification. The examiner cites Hyduke, column 6, lines 32-68, as for claim 8, and the cited text does not teach or suggest a transaction identification.

Claim 10, dependent on claim 8, further specifies that the correlative information comprises an address of memory being accessed by the stimulus and an identity of a source of the stimulus. Hyduke does not teach or suggest correlative information comprising an address of memory being accessed by the stimulus and an identity of a source of the stimulus. The examiner lumps claims 9 and 10 together without addressing the specific limitations of claim 10.

Claim 11, dependent on claim 4, further specifies program code for gathering the stimulus from a plurality of separately transmitted portions. Hyduke does not teach or suggest program code for gathering a stimulus from a plurality of separately transmitted portions. The examiner cites Hyduke, column 3, lines 54-68, which discusses the schematic and netlist data entries to the data table generator. To the extent that such data can be considered to be a "stimulus", there is no

teaching or suggestion that any one stimulus is gathered from a plurality of separately transmitted portions.

Claim 13, dependent on claim 4, further specifies program code for creating a transaction record to contain information relating to a memory transaction involving the agent. Hyduke does not teach or suggest anything concerning memory transactions. The examiner cites Hyduke, column 6, lines 32-68, which discusses whether a model is available in RAM, but the cited text is irrelevant to memory operations.

Claim 14, dependent on claim 13, further specifies program code for creating an expectation record to contain information relating to an expected event from the agent; and program code for associating said expectation record with the transaction record. Hyduke does not teach or suggest program code for creating an expectation record to contain information relating to an expected event from the agent; and program code for associating said expectation record with the transaction record. The examiner lumps claims 13 and 14, without addressing the additional limitations of claim 14.

Claim 15, dependent on claim 4, further specifies program code for storing expected data associated with the expectation, the expected data being received in a plurality of separate incoming transmissions in the stimulus, the expected data being expected to be transmitted by the agent in a plurality of separate outgoing transmissions in the event. Hyduke does not teach or suggest program code for storing expected data associated with an expectation, the expected data being received in a plurality of separate incoming transmissions in the stimulus, the expected

data being expected to be transmitted by the agent in a plurality of separate outgoing transmissions in the event. The examiner cites Hyduke, column 7, lines 10-35, which discusses various outputs that might be generated depending on the inputs, but the cited text has nothing to do with expected data being received in a plurality of separate incoming transmissions in the stimulus, or the expected data being expected to be transmitted by the agent in a plurality of separate outgoing transmissions in the event.

Claim 16, dependent on claim 15, further specifies program code for comparing the expected data with actual data in the event; program code for signaling an error if the expected data does not match the actual data; and program code for signaling an error if the actual data is not expected. Hyduke does not teach or suggest program code for comparing the expected data with actual data in the event; program code for signaling an error if the expected data does not match the actual data; and program code for signaling an error if the actual data is not expected. The examiner cites Hyduke, column 8, lines 43-48, which states that an error is generated if there is any discrepancy between signals 45 and 47. A general statement such as "any discrepancy" does not anticipate a specific limitation such as signaling an error if the expected data does not match the actual data and program code for signaling an error if the actual data is not expected.

Claim 17, dependent on claim 15, further specifies program code for signaling an error if any of the plurality of separate outgoing transmissions is detected before all of the plurality of separate incoming transmissions have been received. Hyduke does not teach or suggest program code for signaling an error if any of the plurality of separate outgoing transmissions is detected before all of the plurality of separate incoming transmissions have been received. The examiner cites

Hyduke, column 8, lines 43-48, which states that an error is generated if there is any discrepancy between signals 45 and 47. A general statement such as "any discrepancy" does not anticipate a specific limitation such as program code for signaling an error if any of the plurality of separate outgoing transmissions is detected before all of the plurality of separate incoming transmissions have been received.

Claim 18, dependent on claim 15, further specifies that the program code for monitoring the at least one output of the agent for the event begins monitoring the at least one output for the plurality of separate outgoing transmissions as soon as a first of the plurality of separate incoming transmissions has been received. Hyduke does not teach or suggest program code for monitoring the at least one output of the agent for the event begins monitoring the at least one output for the plurality of separate outgoing transmissions as soon as a first of the plurality of separate incoming transmissions has been received. The examiner cites Hyduke, column 6, lines 32-68, which discusses producing a table based on inputs, but has nothing to do with monitoring an output for a plurality of separate outgoing transmissions as soon as a first of the plurality of separate incoming transmissions has been received.

Claim 19, dependent on claim 18, and claim 20, dependent on claim 19, and claim 21, dependent on claim 18, all specify further limitations. The examiner lumps claims 18-21 without addressing the specific limitations of claims 19, 20, and 21.

Claim 23, dependent on claim 1, further specifies that the step of signaling an error further comprises signaling an error when the expected output does not occur. Hyduke does not teach or

suggest signaling an error when the expected output does not occur. The examiner cites Hyduke, column 8, lines 43-48, which states that an error is generated if there is any discrepancy between signals 45 and 47. A general statement such as "any discrepancy" does not anticipate a specific limitation such as signaling an error when the expected output does not occur.

Claim 24, dependent on claim 1, further specifies that the step of signaling an error further comprises signaling an error when the expected output does not occur within a predetermined time. Hyduke does not teach or suggest signaling an error when the expected output does not occur within a predetermined time. The examiner cites Huduke, column 3, lines 30-34, which states that a simulator should model timing behavior of the real circuit. That general statement does not anticipate signaling an error when the expected output does not occur within a predetermined time.

Claim 25, dependent on claim 1, further specifies that the step of signaling an error further comprises signaling an error when no transaction record can be identified for an output. Hyduke does not teach or suggest signaling an error when no transaction record can be identified for an output. The examiner cites column 8, lines 43-48, which states that an error is generated if there is any discrepancy between signals 45 and 47. A general statement such as "any discrepancy" does not anticipate a specific limitation such as signaling an error when no transaction record can be identified for an output.

Claims 26-28, dependent on claim 1, each specify additional limitations. The examiner lumps claims 25-28 together without addressing the specific limitations of claims 26-28.

In view of the above, the applicant respectfully requests that the application be allowed to issue as a patent with all pending claims.

Respectfully submitted,

KLAAS, LAW, O'MEARA & MALKIN, P.C.

By: /Augustus W. Winfield/

Augustus W. Winfield, Reg. No. 34,046

1999 Broadway, Suite 2225

Denver, Colorado 80202

Telephone: (303) 298-9888

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